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Reply To: OCE-127

JUN - 9 2010

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James Cagle, Risk Manager - EHS  
Nu-West Industries, Inc.  
Agrium Conda Phosphate Operations  
310 Conda Road  
Soda Springs, Idaho 83276

Re: EPA comments to Revised Sampling and Analysis Work Plan for Site Characterization  
Nu-West Industries, Inc. Conda Phosphate Operations, Soda Springs, Idaho,  
dated May 6, 2010  
RCRA ID Number IDD 00046 6888

Dear Mr. Cagle:

The purpose of this letter is to disapprove the Revised Sampling and Analysis Work Plan submitted to EPA on May 10, 2010 pursuant to the Administrative Order on Consent (Order), Docket No. RCRA-10-2009-0186. Enclosed is a list of comments that need to be addressed and deficiencies that need to be corrected.

In accordance with paragraph 70 of the Order, Nu-West Industries must submit a revised Work Plan within fourteen calendar days of receipt of this letter that responds to the comments received and corrects all deficiencies identified. If you or your contractors have any questions, feel free to call me at (206) 553-2964. Alternatively, you may reach me via email at: [Magolske.Peter@epamail.epa.gov](mailto:Magolske.Peter@epamail.epa.gov). Thank you.

Sincerely,

Peter Magolske  
Air/RCRA Compliance Unit

Enclosure

cc: P. Scott Burton, Esq. Hunton and Williams LLP  
Brian Monson, IDEQ

IDD 6888  
6-9-10  
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**EPA comments to May, 6, 2010 Revised Sampling and Analysis Work Plan for  
Site Characterization Nu-West Industries, Inc. Conda Phosphate Operations,  
Soda Springs, Idaho**

**Comment A**

EPA comment #5 (February 8, 2010) stated the following:

There is no evidence provided that this is true. Also, this statement contradicts a further statement on the same page elaborating on the placement of the Torgesen well within the highly fractured zone associated with the faults on the downthrown side of the fault. Furthermore, if this zone "...is highly fractured and is likely a preferential pathway for surface water infiltration", it will be also a zone of a preferential flow for groundwater. Revise the Work Plan to include hydrogeologic tests and specify the procedures for such tests, or provide adequate support for this statement.

EPA comment #6 (February 8, 2010) stated the following:

The information provided does not adequately substantiate this statement. There is concern that, as implied by the groundwater isopotential lines on Figures 11 and 12, the well is intensively pumped, and if its future capture zone reaches the contaminated region of the aquifer, then the well would not be representative of background.

Revise the Work Plan to provide for drilling another well or several wells up gradient that provide background data. Include procedures for drilling and sampling the background well(s).

Figures 11 and 12 show the "flattening" (from east to west) of the potentiometric surface in the area of the fault. In the groundwater flow analysis, by the low of continuity, the flatter the surface (i.e., smaller hydraulic gradients), the higher the hydraulic conductivity of the solid matrix. Thus, the fault in question does not separate groundwater but rather connects it.

Piezometers need to be placed west of the fault line to properly define the regional groundwater flow patterns. Include procedures for installation and monitoring to properly define groundwater flow.

Page 5, Paragraph 2.5.1.2 of the draft Work Plan (May 6, 2010) was revised to include the following statement:

Groundwater flow paths in the fault area are spatially and temporally complex due to the enhanced areal recharge and relatively higher permeability of the intensely fractured aquifer material. Given these conditions, some proportion of the water would flow in a direction parallel to the fault trend, which would be to the south based on the local topography. The remaining groundwater flow would be to the west-southwest in response to the regional hydraulic gradient. The integrated effects of the flow dynamics within the fault zone would influence the flow of water to areas hydraulically downgradient of the fault to the west-southwest. The Supplemental Work Plan to follow will address

approaches to evaluating groundwater flow and water quality in the fault zone and to the west-southwest.

EPA Comments #5 and #6 (February 8, 2010) have not been adequately addressed.

EPA will not accept MW-7 as representative of background. The well is screened from 104 to 465 feet, and is 503 feet deep. Due to the excessive depth, the water monitored from this well is unlikely to be comparable in chemistry to the shallow water interacting with the Nu-West's operations. A serious concern remains that because well MW-7 is a production well and has already dramatically deflected the groundwater equipotentials (Figure 12), its near future capture zone might reach the contaminated area. At such time, it will be impossible to discern changes in water quality caused by the changes of regional hydrologic regime from those resulting from the proximity of the main processing area. Therefore, the earlier the monitoring program characterizes up-gradient water quality in each geologic unit delivering water to the facility, the better it will be for the project.

The new language in the revised Work Plan (May 6, 2010) that replaces the original text contains much verbiage, but adds nothing to the knowledge on the impact of the fault in question on the groundwater flow pattern. Delete the new paragraph and substitute with the following statement:

The role of the fault in the groundwater flow regime (including its quality) is not known at the present time, and must be determined as part of the work required by the Supplemental Work Plan.

The revised Work Plan did not incorporate the discussion of the use of piezometers. In order to best proceed with the initial phase of the Work Plan, the selection of groundwater background location will need to be addressed in the Supplemental Work Plan. The use of piezometers, as necessary, to develop a comprehensive groundwater monitoring network will also need to be addressed in the Supplemental Work Plan. The use of hydrogeologic tests to support groundwater characterization will need to be addressed in the Supplemental Work Plan. The data obtained from the Electrical Resistivity Imaging (ERI) and Seismic surveys must be used to support the selection of appropriate monitoring locations as part of the development of a comprehensive groundwater monitoring network. The Supplemental Work Plan must include plans and procedures for selecting representative background well locations and the bases for their selection.

#### **Comment B**

EPA comment #18 (February 8, 2010) stated the following:

Include a description of the railcar operations at the facility. This needs to identify the sampling locations that will be used to assess the soil at the rail car washing operations and include a rationale for their selection.

Page 34, Section 7.1.3.6 of the draft Work Plan (May 6, 2010) was revised and includes the following statement:

The railcar washing facilities are located on the rail to immediately to the east.

Correct this statement by removing the word "to" after the word "rail".

### **Comment C**

EPA comment #21 (February 8, 2010) stated the following:

Provide the methodology and results of the referenced investigations to EPA. Also provide details on the interim remedial measures employed, if any. Identify which well or wells are being used to determine typical background. Revise Section 2.1 to provide an accurate record of the previous site investigations.

Page 25, Section 5.2.2 of the draft Work Plan (May 6, 2010) was revised and includes the following statement in the second paragraph:

After plotting the EM field data, locations were selected to conduct a series of soundings to additional geophysical data at depth.

This particular sentence is unclear. Correct or clarify this sentence.

### **Comment D**

EPA comment #27 (February 8, 2010) stated the following:

It is unclear what is meant by “final array of ERI transect lines” in this section. Is this a 6th ERI profile? What type of “site limitations” are expected and what adjustments would be necessary based on these expected limitations?

How will 3-D representation be constructed? Will this be an interpolated image constructed by combining the 2-D results? Or a fence diagram of the 2-D images? Or will the data be inverted using a 3-D algorithm?

Are surface conditions favorable for ERI? Contact resistance at the earth-electrode interface often makes it difficult to input adequate current for imaging deep structure. Will the electrodes be watered to improve contact? Will contact resistance be measured and recorded during the survey? What are the specifications for the current source (i.e., frequency, output power, etc.)?

It is unlikely that the resistivity systems typically used in near-surface environmental work [e.g., Iris Syscal, Advanced Geosciences, Inc. (AGI) SuperSting, etc., which generally have less than 500 watt output] would provide adequate current penetration, especially if near-surface conditions are resistive. Use of a high-powered transmitter (at least 2.5 KW) for this survey is suggested.

How will data quality be assessed (i.e. Statistics from stacked measurements, comparison of reciprocal measurements)? Will data not meeting quality requirements be discarded from analysis? If so, what are the cutoff criteria?

Provide more details and a response to the questions posed above as part of the procedures and rationale for the Surface Geophysics Electrical Resistivity Imaging proposal.

Section 6.2.2 of the draft Work Plan (May 6, 2010) was revised. Page 11 of the narrative response accompanying the revised draft Work Plan provided to EPA includes the following statement in the second paragraph:

The layout of the ERI transects will be as shown in Figure 16. It may be necessary to slightly adjust certain transects based on site features such as the topography of the western fault scarp and electrically conductive underground utilities in the vicinity of proposed transects (shortened, broken into separate segments, or offset laterally). Overall, the transect layout shown in Figure 16 will be adhered to as close as possible.

These sentences were not included in the Work Plan. Revise the Work Plan to include these sentences.

The Work Plan needs to be revised to provide for the collection of reciprocal measurements for all dipole pairs.

Editorial comments for Section 6.2.2:

- Wenner (not Warner) array: "Resistivity readings will be collected using a hybrid dipole-dipole Warner array." This error is also found in QAPP Section 2.1.1
- M.H. Loke is misspelled: "RES2DINV software developed by M.H. Lake." This error is also found in QAPP Section 2.1.1

#### **Comment E**

EPA comment #28 (February 8, 2010) stated the following:

This section lacked sufficient detail in order to document the procedures that will be used in the seismic refraction survey to characterize the potential pathways of contaminant migration.

Conventional processing techniques for seismic refraction data lead to difficulties in resolving thin layers. Ray tracing inversion is mentioned as a processing step. This would help in resolving these thin layers.

A site with complex geology, such as the Nu-West facility, requires more shot points to adequately characterize the geology. In order to improve the seismic imaging, include additional shot points along the geophone spread to provide additional data for tomographic or ray-tracing inversion. Also, include reflection processing of the seismic data in addition to the refraction processing.

How many geophone spreads are planned per transect? How much overlap will be used when moving the geophone spreads forward? How many shots will be stacked at each shot point? Will data be recorded for each shot and stacked in processing or will data be stacked in the field? What sampling frequency will be used? How many samples per trace are planned? Will analog filters be used during acquisition? What is the frequency content of the source? Are source frequency characteristics appropriate for imaging faults, fractures, and interflow zones based on the expected widths and lateral extents of these features? Will seismic geophone locations and shot locations be surveyed for horizontal and vertical control?

Provide more details and a response to the questions posed above as part of the procedures and rationale for the Surface Geophysics Seismic Refraction proposal.

Page 28, Section 6.2.3 of the draft Work Plan (May 6, 2010) was revised. The revised text includes the following statement:

The need for collecting seismic reflection data will be based on an evaluation of the ERI survey data. If ambiguities or data gaps are identified within the basalt sequence in the ERI profiles, seismic reflection will be performed along the appropriate ERI transects to further evaluate the basalt stratigraphy and bedrock structural features. Seismic reflection is a technique well-suited to deep imaging of bedrock structure and stratigraphy and is not affected by velocity inversions.

The newly included details regarding the seismic data acquisition and processing do not adequately address the concerns of the Agency. Nu-West revised the Work Plan to make scoping of the seismic work contingent on Nu-West's interpretation of the ERI data. The two techniques are synergistic and provide very different information as to the nature of the subsurface. If the electrical resistivity data reflect the electrical conductivity contrast of a plume being hosted in the rock matrix, the effects of ground-water chemistry cannot be separated from the effect of the site geology. The way the plan is written, all observed variability is attributed to the geology. The use of both ERI and seismic should allow these conflated signals to be identified and to some extent isolated. This would be impossible if only one technique were employed. Both geophysical techniques need to be employed along all the lines to be assessed.

QAPP Section 1.4 states "This will consist of a combined electrical resistivity imaging and seismic refraction survey with downhole geophysical logging." This is the language which is to be used throughout both the WorkPlan and the QAPP. Remove all contradictory or contingency language in the documents such as in QAPP Section 2.1.1 where it is stated that seismic imaging will only performed on a contingency basis, if resistivity imaging is insufficient. Correct this statement in QAPP Section 2.1.1, and any other language where the seismic survey is contingent on ERI survey results, to parallel the language used in Section 1.4.

The Agency commented that,

A site with complex geology, such as the Nu-West facility, requires more shot points to adequately characterize the geology.

We intended this statement to drive an expansion of the areas covered by the lines to be characterized and not just an increase in the density of shot points. The Agency also requested additional transects. Transect #1 appears to partially address this request. However, an additional transect to the west has not been included. The ERI and seismic lines must be extended so as to encompass and extend beyond the areas of potential impact to ground-water by site operations in order to ensure that the data results will provide sufficient contrast between impacted and non-impacted areas. In this way, Nu-West will characterize the geologic and hydrologic setting of this site. The Agency is concerned that given the complexity of the fractured basalt at this site, discontinuous ERI data on the west will lead to gaps in geophysical data that will result in an inadequate basis for selection of appropriate groundwater monitoring network locations.

Surveying the continuous transect lines surrounding and within site operations will support the selection of appropriate points for the groundwater monitoring network and characterize the geologic setting of the site.

Not all lines require such extension. However several lines need to be nearly doubled in length and two additional lines need to be added to address concerns voiced in comment #6 (February 8, 2010). Specifically, Line #4 needs to be extended in a north-east direction to a point approximately even with the extension of the northern boundary of tailings ponds 1 and 2. Line #5 needs to be extended to the north, to a distance 1,000 feet beyond the northern boundary of Tailings Pond #4. Line #6 needs to be extended to the south, approximately 500 feet south of Conda Road. Line #9 needs to be extended further to the west by 1,000 feet and to the east approximately 300 feet beyond the dashed line shown on Figure 16. A new line, #10 needs to be added to address the characterization of geologic and ground-water variability on the up-gradient boundary of the site as discussed in EPA Comment #6 (February 6, 2010). Since the geologic information gained is expected to be significant, the line needs to be oriented obliquely to cross the fault shown on Figure 16. Line #10 needs to extend north, beyond line #4, and south to the centerline of the eastern boundary of the Simplot Tailings Pond. Add line #11 to address EPA's request for a transect to the west of the property (EPA Comment #6 on February 6, 2010). The line needs to parallel SR34 and extend 1,000 feet north of the northwest corner of the West Gypsum Stack (F-GYP-1) to 1,800 feet south of the intersection of SR34 and Conda Road. Lines #7 and #8 need to extend across line #11, so that they provide a full depth survey at the intersection.

EPA recognizes that the precise course and extent of all these lines will be constrained by site features (i.e. underground utilities, power lines, etc.). Nu-West needs to revise the Work Plan and to incorporate these changes to the scope of this investigation since the last iteration fell significantly short. Again, all lines need to be run using both Electrical Resistivity and Seismic imaging techniques.

#### **Comment F**

EPA comment #39 (February 8, 2010) stated the following:

Clearly demarcate locations of "background" sampling sites on each of the relevant sampling maps.

Section 7.1.5 of the draft Work Plan (May 6, 2010) was revised. The revised text includes the following statement:

To address this comment, the collection of 7 background soil sample locations has been incorporated into Section 7.1.5 of the revised Work Plan. Locations of the background samples (BK-1 through BK-7) have been incorporated in Figure 18. The protocol for collecting soil samples will be the same as described in Section 7.1.2.1 and the analytical program will be the same as described in Section 7.1.4.

Comment No. 39 has not been adequately addressed. The background locations for soil samples identified in Figure 18 may have been impacted by past activities on site and by wind dispersed releases compromising the areas selected for background.

The Agency is concerned that the results of discrete samples may not be representative of true background. Frequently, due to spatial variability in the distribution of constituents of concern, the results from single spot or grab samples are frequently highly variable and un-reproducible. We have found the use of multi-increment sampling greatly reduces this variability and results in data which are far better suited for determining site background.

The Supplemental Work Plan must include plans and procedures for collecting samples representative of background. Revise the Work Plan to state that this work will be done as Part of the Supplemental Work Plan. Revise Figure 18 remove references to samples BK1 through BK7. Delete the third paragraph of Section 7.1.5 and replace with the following text:

For purposes of ascertaining background soil quality, the Supplemental Work Plan will include plans and procedures for collection of samples representative of background.

### **Comment G**

EPA comment #47 (February 8, 2010) stated the following:

Revise this section to account for these exceedences.

Page 44, Section 7.4.3.1 of the draft Work Plan (May 6, 2010) was revised to include a discussion of metal exceedences at the site since 2007.

Comment No. 47 has not been adequately addressed. The revised section does not include the requested data or acknowledgement of metal exceedences from 1994 and 2005. The comment indicates that section 7.4.3 is to be revised to include metals exceedences from the 1994 and 2005 reports. Nu-West added a discussion about exceedences since 2007 to the section but did not include metals exceedences from previous years.

One of the conclusions drawn from the October 2005 Groundwater Assessment Report prepared by Engineers, Inc. was that Production well NW-1 revealed elevated levels of TDS, sulfate, and aluminum. Data from the 2004 Kleinfelder Report to Agrium identifies exceedences of cadmium, chromium, nickel, and fluoride in excess of the EPA MCLs in well NW-9.

In order to design a proper groundwater monitoring network that characterizes the potential pathways of contaminant migration and characterizes the extent of any groundwater contamination at or from the Facility, having an accurate understanding of past groundwater contamination is important. Revise section 7.4.1.1 to include the above information on wells NW-1 and NW-9.

### **Comment H**

EPA comment #48 (February 8, 2010) stated the following:

See EPA comment #6 above. Revise this section accordingly.

EPA comment #6 (February 8, 2010) directed Nu-West to revise the Work Plan to provide for drilling another well or several wells up gradient that provide background data; to include procedures for drilling and sampling the background well(s); to place piezometers west of the fault

line to properly define the regional groundwater flow patterns; and to include procedures for installation and monitoring to properly define groundwater flow.

EPA comment #48 has not been adequately addressed. The Supplemental Work Plan must include plans and procedures for selecting representative background well locations.

#### **Comment I**

EPA comment #66 (February 8, 2010) stated the following:

It is unclear what constraints will be used when inverting the seismic data. Add details describing what constraints will be used when inverting the seismic data (e.g., will the known bedrock depths be used as constraints when inverting the seismic data?).

Nu-West's narrative response (May 10, 2010) states the following:

Boring logs for wells will be reviewed to identify various stratigraphic interfaces that might appear as reflectors in the seismic data. Processed seismic data is a pseudo cross-section in distance (X) versus two-way travel time (T). The seismic velocity for various layers can be estimated by the curvature of their reflections on multi-channel common-depth-point gathers. For locations where the depth to a reflector is known based on information in the boring log, the two-way travel time at that point can be used to calculate the seismic velocity for the layer(s) above this reflector. Thus, for seismic transects with adjacent high-quality boring logs, the distance vs. travel time pseudo cross-sections can be converted to distance versus depth (X vs. Z) true cross-sections.

This information responsive to EPA Comment No. 66 has been incorporated into Section 2.1.1 of the QAPP.

Comment 66 has not been adequately addressed. Incorporate the language from the narrative above into the QAPP section 2.1.1. There is ambiguity whether borehole geophysics will be completed on a contingency basis. The Work Plan only states that a maximum of 10 locations will be selected for borehole geophysics. The Work Plan needs to be revised to require submission of a plan for EPA approval for borehole geophysical investigations following the ERI and Seismic survey investigations. Such plans shall identify a minimum of 10 borehole locations or provide justification for fewer than 10.

#### **Comment G**

EPA comment #67 (February 8, 2010) stated the following:

Include container, preservative, and holding times for nutrients, TDS, TSS, anions, and radionuclides.

QAPP SOP #2 has been revised responsive to EPA Comment No. 67. However, the orthophosphate preservation is incorrect. See EPA Comment 59 (February 8, 2010).

Orthophosphate  
Method 365.1

Sample size: 500ml  
Detection limit: 0.05mg/l  
Preservation: Less than 4-deg C  
Holding time 48 hours  
Filter within 15 minutes of sampling

#### **Comment H**

EPA comment #68 (February 8, 2010) stated the following:

SOP 3 is not comprehensive because it does not include total phosphorus, orthophosphate, TDS, TSS, TKN, or fluoride in the order of sample collection. Add total phosphorus, orthophosphate, TDS, TSS, total Kjeldahl nitrogen (TKN), or fluoride in the order of sample collection.

Nu-West's narrative response (May 10, 2010) states the following:

SOP #3 has been revised responsive to EPA Comment No. 68.

Comment 68 has not been adequately addressed. This change was not made to the revised Work Plan (May 6, 2010). The order of sampling still fails to contain the listed analytes. Two lists are present in SOP3 as Procedure 3, Item #17 for bailer sampling and Procedure 3B, Item #15 for flow submersible pump. Modify both lists to include all analytes in the Work Plan.

#### **Comment I**

Revise Table 5 (Surface Water Groundwater Sample Analytical Methods) to include chloride as an analyte.

##### **Chloride**

Method 300

Sample size: 250ml

Detection limit: 0.06 mg/l

No preservative

holding time: 28 days

#### **Comment J**

Page 30, Section 7.1.1 concludes with the following sentence:

If so, additional sampling locations will be proposed and discussed with EPA.

Replace with the following sentence:

If so, additional sampling locations will be proposed, subject to EPA approval.

#### **Comment K**

EPA comment #56 (February 8, 2010) stated the following:

The Work Plan, including Section 13 and Figure 22, must be revised to provide a site specific schedule for expeditious completion of all activities. The schedule may include some flexibility, but must include an enforceable schedule for submission of the Supplemental Work Plan and Sampling and Analysis Report as well as a sufficient number of enforceable interim milestones to ensure expeditious completion of all activities. A tentative, preliminary, approximate or estimated schedule does not provide a site specific schedule for expeditious completion of all activities and will not be approved.

In addition, the Work Plan cannot include a list of assumptions that qualifies Nu West's commitment to the schedule. Events that arise from causes that are not reasonably foreseeable and are beyond the control of Nu West are already addressed by the AOC's Force Majeure provisions. In addition, schedules can be adjusted under the AOC when appropriate upon the approval of the Project Coordinators.

Nu-West's revised text does not adequately address the Agency's comment. It is unnecessary to include language concerning events or circumstances beyond the control of Respondent as such matters are addressed by the Force Majeure provisions in the AOC. Delete all of the text in Section 13 and replace with the following.

Implementation of the assessment activities is scheduled to commence within 30 days following EPA's approval of this Work Plan. Figure 23 presents the project schedule reflecting the activities described in this Work Plan. The majority of the Site investigation activities include:

- ☐ ground survey to ascertain spatial relationship of sampling locations and site features
- ☐ geophysical surveys to characterize subsurface fractures
- ☐ advancement of soil borings and collection of soil samples from SB-1 through SB-87
- ☐ sediment sampling
- ☐ surface water sampling
- ☐ sampling existing groundwater monitoring wells
- ☐ conducting potable well survey
- ☐ conducting wetland and surface water survey

As indicated in Figure 23, Nu-West anticipates that the majority of the field investigation activities will be completed within approximately 90 days following EPA's approval of this Work Plan. As described in Section 7.3, surface water sampling from Woodall Spring and Woodall Spring Ditch will be dependent upon surface water flow conditions.

The Site Assessment Report and Supplemental Work Plan will be submitted to the appropriate parties within 240 days following EPA's approval of this Work Plan.

This Work Plan identifies a phased approach to laboratory testing such that analyses for some samples are dependent on the receipt and review of data for other samples. Nu-West will make every reasonable attempt to adhere to this schedule. Updates to the schedule will not require approval by EPA unless an update would change the date set forth above for submission of the Site Assessment Report or Supplemental Work Plan. Should Nu-West be unable to obtain necessary access to off-site properties after best efforts, Nu-West shall notify EPA and may propose alternative sampling locations and / or request that EPA obtain needed access to offsite properties.

In accordance with paragraph 70 of the Order, Nu-West Industries must submit a revised Work Plan within fourteen calendar days of receipt of this letter that responds to the comments received and corrects all deficiencies identified. If you or your contractors have any questions, feel free to call me at (206) 553-2964. Alternatively, you may reach me via email at: Magolske.Peter@epamail.epa.gov. Thank you.

Sincerely,

Peter Magolske  
Air/RCRA Compliance Unit

Enclosure

cc: P. Scott Burton, Esq. Hunton and Williams LLP  
Brian Monson, IDEQ

bcc: Andrew Boyd, ORC-158  
Peter Magolske, OCE-127  
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